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| Michael A. Oblon           |             |                      |                     |                  |
| Patent Procurement         |             |                      |                     |                  |
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|                            |             |                      | EXAMINER            |                  |
|                            |             |                      | RALIS, STEPHEN J    |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/656,900

Applicant(s)

AXINTE ET AL.

Examiner

Stephen J. Ralis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 71,72,76 and 81-92 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 71,72,76 and 81-92 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/13/2006 and 6/22/2007.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Response to Amendment/Arguments***

2. Applicant's arguments with respect to claims 71, 72, 76 and 81-92 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 71, 72, 76 and 81-92 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claims 81 and 92 recites the limitation "such that the light can illuminate a working surface" in lines 4-5. The recitation is not definitive to whether the light can or cannot illuminate the working surface Therefore, the claim limitation, as noted above, is deemed indefinite.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 71, 72, 76, 81, 82, 85 and 92 rejected under 35 U.S.C. 102(b) as being anticipated by Kitsuda (U.S. Patent No. 2,092,218) and Lee (U.S. Patent No. 5,954,458).

Kitsuda discloses a cordless soldering tool comprising: a handheld body (cylinder 1) adapted to house an electrical power storage source (battery 2; see Figure 1); a detachable solder tip (igniter assembly 7 removable via socket 5; column 1, lines 46-50) mounted on the handheld body (cylinder 1); a light (lamp bulb 6) located on the handheld body (cylinder 1), wherein the light (lamp bulb 6) is oriented such that the light can illuminate a working surface proximate the detachable solder tip (igniter 7) (see Figure 1); and an electrical switch (switch 15) for selectively powering the light without powering the detachable solder tip (igniter assembly 7).

With respect to the limitation of a soldering tool, Kitsuda disclose an igniter (7) comprising a filament (19) that reaches temperatures high enough to ignite an air gas mixture. The temperatures would be high enough to melt thin low temperature solders known in the art. Therefore, Kitsuda fully meets "a cordless soldering tool" given its broadest reasonable interpretation.

With respect to the limitations of claim 71, Kitsuda teach the lamp (6) and the igniter unit (7) being operated alternatively or simultaneously by manipulating the switch (15) and/or the switch comprising the spring contact 18 (column 2, lines 25-31; column 3, lines 1-16).

With respect to the limitations of claim 72, Kitsuda discloses the electrical switch being disposed on the handheld body for user operation (Kitsuda: see Figure 1).

With respect to the limitation of claims 82 and 76, Walton discloses an electrical power storage device being a battery (column 1, lines 44-52; column 2, lines 47-60; see Figure 4).

With respect to the limitations of claims 85 and 92, Kitsuda disclose the lamp circuit comprising the dry battery (2), the common contact (10), the bulb (6), the conductor (11), the usual switch piece (16) and the conductive cylinder wall 1 connected to the battery (2). Kitsuda further discloses an independent circuit, an igniter circuit, including the dry battery (2), the common contact 10, the igniter filament (19), the igniter tube (7), the conductor (11'), the spring contact (18) and the conductive cylinder wall (1) connected to the battery (2) (column 2, lines 47-55). Kitsuda discloses the circuit sharing the same power source, however, having different switch functionality, thereby the lamp bulb (6) and the igniter (7) would be electrically connected in parallel with each other as well as the dry battery (2). Furthermore since the lamp circuit and the igniter circuit are essentially independent of each other except for the power source and various conducting element, the electrical switch (switch 15) and lamp bulb (6) would be connected in series and the combination of the electrical switch (switch 15) and lamp

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bulb (6) would be connected in parallel with the igniter, as noted above. Therefore, Kitsuda fully meets "the light and the detachable solder tip are electrically connected in parallel with each other and an electrical power storage source" and "a user-operable switch mounted on the handheld body and electrically connected in series with the light so that the light and the user-operable switch are electrically connected in parallel with respect to the detachable solder tip" given its broadest reasonable interpretation.

As the reference meets all material limitations of the claims at hand, the reference is anticipatory.

8. Claim 92 is rejected under 35 U.S.C. 102(b) as being anticipated by Walton (U.S. Patent No. 3,899,654).

Walton discloses A cordless soldering tool (Title) comprising: a handheld body adapted to house an electrical power storage source; a detachable solder tip mounted on the handheld body (elongated body 11) (column 4, lines 1-10; see Figures 4-7); a light (lamp 45) located on the handheld body (elongated body 11), wherein the light is oriented such that the light can illuminate a working surface proximate the detachable solder tip (see Figures 1, 2); and a user-operable switch (push button 20) mounted on the handheld body (elongated body 11) and electrically connected in series with the light (lamp 45) so that the light (lamp 45) and the user-operable switch (pushbutton 20) are electrically connected in parallel with respect to the detachable solder tip (tip 55).

With respect to the limitations of a user-operable switch mounted on the handheld body and electrically connected in series with the light so that the light and the

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user-operable switch are electrically connected in parallel with respect to the detachable solder tip, Walton discloses the lamp being connected in shunt with forward terminals (35, 36) in circuit with the switch elements (31, 40) (column 3, lines 27-29). Walton further discloses the electrical conductors (62, 63) for the tip (element 60) being connected respectively between the ends of element (60) and the terminal (35, 36) (column 4, lines 1-10). Therefore, since the lamp (45) is connected in shunt with the terminal (35, 36) and the electrical conductors (62, 63) of element (60) are connected to terminal (35, 36), the lamp (45) and soldering tip (element 60) are connected in parallel with each other an the electrical power source (25). Furthermore, the user-operable switch (pushbutton 20) must be connected at least in series with terminal (35, 36) and, since the lamp (45) and/or the tip (element 60) are connected in parallel to the terminal (35, 36), the user-operable switch (pushbutton 20) must be connected in series either with both the lamp (45) and/or the tip (element 60). Therefore since user-operable switch (pushbutton 20) is at least connected to the lamp (45) in series, the combination of the lamp (45) and the user-operable switch (pushbutton 20) would be in parallel with the tip (element 60) given its broadest reasonable interpretation. Therefore, Walton fully meets "a user-operable switch mounted on the handheld body and electrically connected in series with the light so that the light and the user-operable switch are electrically connected in parallel with respect to the detachable solder tip" given its broadest reasonable interpretation.

As the reference meets all material limitations of the claims at hand, the reference is anticipatory.

***Joint Inventors – Common Ownership Presumed***

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.



12. Claim 71, 72, 76 and 81-85 are is rejected under 35 U.S.C. 103(a) as being unpatentable over Walton (U.S. Patent No. 3,899,654) in view of Kitsuda (U.S. Patent No. 2,092,218) and Lee (U.S. Patent No. 5,954,458).

Walton discloses a cordless soldering tool (Title) comprising: a handheld body (elongated body 11) adapted to house an electrical power storage source (see Figures 1, 4); a detachable solder tip (tip assembly 55) mounted on the handheld body (elongated body 11) (column 4, lines 1-10; see Figures 4-7); a light (lamp 45) located on the handheld body (elongated body 11), wherein the light (lamp 45) is oriented such that the light can illuminate a working surface proximate the detachable solder tip (tip assembly 55); and an electrical switch (push button 20) for selectively powering the light with powering the detachable solder tip.

With respect to the limitation of claims 82 and 76, Walton discloses an electrical power storage device being a battery (column 2, lines 47-60; see Figure 4).

With respect to the limitations of claims 83 and 84, Walton discloses an alternative embodiment where the configuration may or may not be of an electrically conducting material. Walton further discloses the tip assembly portion includes a pair of electrical conducts, for supporting the heating element and the member from, an in a spaced relationship with, the housing for energizing the element. Walton is disclosing a pair of electrical conductor electrodes spaced apart from one another both being coupled to the power source. Since the electrodes are spaced apart from each other an electrical circuit would not be completed until contact was made with a conductive or semi-conductive material. Therefore, Walton fully meets "first and second electrodes

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electrically isolated from each other, the first and second electrodes each coupled to the electrical power storage" and "an electrical circuit between the first and second electrodes mad the electrical power source is completed upon contact between a conductive or semi-conductive material and the first and second electrodes" given its broadest reasonable interpretation.

With respect to the limitation of claim 85, Walton discloses the lamp being connected in shunt with forward terminals (35, 36) in circuit with the switch elements (31, 40) (column 3, lines 27-29). Walton further discloses the electrical conductors (62, 63) for the tip (element 60) being connected respectively between the ends of element (60) and the terminal (35, 36) (column 4, lines 1-10). Therefore, since the lamp (45) is connected in shunt with the terminal (35, 36) and the electrical conductors (62, 63) of element (60) are connected to terminal (35, 36), the lamp (45) and soldering tip (element 60) are connected in parallel with each other an the electrical power source (25).

Walton discloses all of the limitations of the claimed invention, as previously set forth, except for the electrical switch selectively powering the light without powering the detachable solder tip.

However, a handheld, cordless, portable heated tip device comprising an electrical switch for selectively powering the light with powering the heated tip is known in the art. Kitsuda, for example, teach a portable electric lamp/igniter device with a heated tip having a switch (15) for the lamp (6) that is selectively activated for powering the light without powering the heated tip igniter (column 1, lines 10-22, column 1, line 44

– column 3, line 16). Kitsuda further teaches the advantage of such a configuration provides a heated tip device that is constructed and function as a pocket lamp. Lee further teaches a cordless portable device with a separate switch for powering the light and not the device having the advantage of not unnecessarily draining the battery when the device is in use, thereby increasing the operational longevity of the cordless device on a single charge. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Walton with the separate switch for powering the light and not the device a boost circuit in order to provide a heated tip device that is constructed and function as a pocket lamp, since as evidenced by Lee, such a configuration provides the advantage of not unnecessarily draining the battery when the device is in use, thereby increasing the operational longevity of the cordless device on a single charge.

With respect to the limitations of claim 71, Kitsuda teach the lamp (6) and the igniter unit (7) being operated alternatively or simultaneously by manipulating the switch (15) and/or the switch comprising the spring contact 18 (column 2, lines 25-31; column 3, lines 1-16).

With respect to the limitations of claim 72, both Walton and Kitsuda teach the electrical switch being disposed on the handheld body for user operation (Walton: see Figure 1; Kitsuda: see Figure 1).

13. Claims 86, 87 and 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walton (U.S. Patent No. 3,899,654) in view of Kitsuda (U.S. Patent No.

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2,092,218) and Lee (U.S. Patent No. 5,954,458) as applied to claims 71, 72, 76 and 81-85 above, and further in view of Fiel et al. (U.S. Patent No. 5,414,927) as evidenced by Funari (U.S. Patent No. 4,171,477).

The Walton-Kitsuda-Lee combination discloses all of the limitations, as previously set forth, except for the detachable soldering tip being graphite material having an electrical resistivity of 1,500 micro-Ohm-cm or greater, a flexural strength of at least about 1,500 psi, and a density of about 1.5 to 1.75 g/cc. However, heating element having an electrical resistivity of 1,500 micro-Ohm-cm or greater, a flexural strength of at least about 1,500 psi, and a density of about 1.5 to 1.75 g/cc, as described by Fiel et al. and furthermore evidenced by Funari, is known in the art.

Fiel et al. teach a heating device (13) being made of a graphite material having an electrical resistivity of 1,500 micro-Ohm-cm or greater (450 –1200 micro-ohms-in converted to 1143 – 3048 micro-ohms-cm; see Table I), a flexural strength of at least about 1,500 psi (most carbon and graphite materials having 4000-6000 psi; invention 10000-18000 psi; column 4, lines 5 – page 5, line 7; column 10, claim 9; see Table I) and a density of about 1.5 to 1.75 g/cc (of at least about 1.75 g/cc; column 10, claim 9; see Table I), in addition to. Fiel et al. further teach an advantage of using the graphite material being isotropic properties, such as electrical resistivity, thereby minimizing hot spots and avoiding the need for additional controlling of orientation of the fabricated element (column 4, lines 51-57). In addition, Fiel et al. disclose the advantage of flexibility as well as strength of the material, thereby providing the ability to easily shape elements without significant cracking (column 4, line 58 – column 5, line 7).

Funari teaches the advantage of using a soldering tip (column 9, lines 10-20; see Figure 6) constructed of a material that may include a large range of micro-ohm-cm based on the material, where the material of notability is a material combination of carbide and graphite having a resistivity of 3200 micro-ohms-cm and up (column 7, line 58 – column 8, line 12) to provide a soldering tip that heats up simultaneously as the soldering surface, thereby preventing the soldering tip from drawing off heat generated to the soldering surface; and to provide a soldering tip that heats up primarily because of contact resistance to the power generated by the current passing through the contact resistance, not the soldering surface itself, thereby providing better soldering fusion joints (column 4, lines 8-64).

Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to make the detachable soldering tip of Walton-Kitsuda-Lee combination with the graphite heating element of Fiel et al. to minimize hot spots and avoid the need for additional controlling of orientation of the fabricated element as well as provide the ability to easily shape elements without significant cracking, since as evidenced by Funari, substituting a graphite heating element will provide a soldering tip heating element that heats up simultaneously as the soldering surface and that heats up primarily because of contact resistance to the power generated by the current passing through the contact resistance, not the soldering surface itself, thereby providing better soldering fusion joints.

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14. Claims 88 and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walton (U.S. Patent No. 3,899,654) in view of Kitsuda (U.S. Patent No. 2,092,218), Lee (U.S. Patent No. 5,954,458), Fiel et al. (U.S. Patent No. 5,414,927) and Funari (U.S. Patent No. 4,171,477) as applied to claims 86, 87 and 89 above, and further in view of Sweetland (U.S. Patent No. 5,394,910).

The Walton-Kitsuda-Lee combination discloses all of the limitations, as previously set forth, except for the detachable soldering tip having a thermal conductivity of less than or equal to 10 BTU/hr-ft-degree.

Sweetland teaches that typical carbon and graphite used in high temperature applications have an average thermal conductivity of 8 BTU/hr-ft-degree F, Sweetland further teaches that some applications prefer high thermal conductivity ranges such as 50 or 60 BTU/hr-ft-degree F. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to make having a thermal conductivity of less than or equal to 10 BTU/hr-ft-degree F, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Furthermore, to provide the detachable soldering tip having a thermal conductivity of less than or equal to 10 BTU/hr-ft-degree would have been a mere engineering expediency as Sweetland clearly teaches the use of carbon and graphite in high temperature applications is dependent on the application in which the element is used.

***Prior Art***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 3,919,522 to Wahl et al. is a teaching of cordless electric ignition tool that is similar to a soldering iron configuration.

U.S. Patent No. 2,210,352 to Albietz is a teaching soldering iron having a light source and a soldering tip comprising two detachable electrodes.

U.S. Patent No. 4,656,336 to Goodey is a teaching soldering iron having a light source and a soldering tip comprising two detachable electrodes.

***Conclusion***

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Ralis whose telephone number is 571-272-6227. The examiner can normally be reached on Monday - Friday, 8:00-5:00.

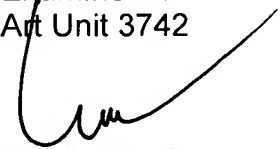
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Stephen J Ralis  
Examiner  
Art Unit 3742

SJR  
September 13, 2007



TU BA HOANG  
SUPERVISORY PATENT EXAMINER